

MAP 4C Mid-Term Exam Review

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1 Introduction

Algebra

$$\begin{aligned}1.a) & (p-4)(p+5) = p^2 + 5p - 4p - 20 = p^2 + p - 20 \\b) & (n+8)(n+2) = n^2 + 2n + 8n + 16 = n^2 + 10n + 16 \\c) & (m+3)(m-7) = m^2 - 7m + 3m - 21 = m^2 - 4m - 21 \\d) & (w-4)(w-6) = w^2 - 6w - 4w + 24 = w^2 - 10w + 24 \\e) & (2x-3)(5x-4) = 10x^2 - 8x - 15x + 12 = 10x^2 - 23x + 12 \\f) & (y-5)(2y+9) = 2y^2 + 9y - 10y - 45 = 2y^2 - y - 45 \\g) & (3a+1)(4a+1) = 12a^2 + 3a + 4a + 1 = 12a^2 + 7a + 1 \\h) & (7-x)(4+x) = 28 + 4x - 7x - x^2 = 28 - 3x - x^2 \\i) & (x-6)(x+6) = x^2 + 6x - 6x - 36 = x^2 - 36 \\j) & (x+2)^2 = x^2 + 2x + 2x + 4 = x^2 + 4x + 4 \\k) & (y+11)(y-11) = y^2 - 11y + 11y - 121 = y^2 - 121 \\l) & (z-5)^2 = z^2 - 5z - 5z + 25 = z^2 - 10z + 25\end{aligned}$$

$$\begin{aligned}2.a) & 4(x-2)(3x-5) = (4x-8)(3x-5) = 12x^2 - 44x + 40 \\b) & 4(x-3)^2 - 5(3x^2 - 5x + 7) = 16x^2 - 24x + 9 - 15x^2 + 25x - 35 = x^2 + x - 26\end{aligned}$$

$$\begin{aligned}3.a) & (2x-5)(x+1) = 2x^2 + 2x - 5x - 5 = 2x^2 - 3x - 5 \\b) & 5x(4x-1) = 20x^2 - 5x \\(8x+3-4x-1)(2x-1) &= (4x+2)(2x-1) = 8x^2 - 2 \\(20^2 - 5x) + (8x^2 - 2) &= 28x^2 - 5x - 2\end{aligned}$$

$$\begin{aligned}4.a) & (18-12x) = 6(3-2X) \\b) & 21w^2 - 28w + 35 = 7(3w^2 - 4w + 5) \\c) & 24x^2 + 16x = 8x(3x+2) \\d) & 15a^3 - 20^2 + 25 = 5a(3a^2 - 4a + 5) \\e) & 20m^2 - 30m = 10m(2m-3) \\f) & 27k^3 - 36k^5 = 9k^3(3-4k^2) \\g) & n^2 - 144 = (n+12)(n-12) \\h) & 81 - x^2 = (9+x)(9-x) \\i) & 5m^2 - 80 = 5(m^2 - 16) = 5(m+4)(m-4) \\j) & 10x^2 - 90 = 10(x^2 - 9) = 10(x+3)(x-3) \\k) & x^2 + 5x + 6 = (x+2)(x+3)\end{aligned}$$

$$\begin{aligned}
\text{l)} & a^2 - a - 30 = (a + 5)(a - 6) \\
\text{m)} & x^2 + 3x - 10 = (x + 2)(x - 5) \\
\text{n)} & m^2 - 9m + 20 = (m - 4)(m - 5) \\
\text{o)} & x^2 + 6x - 27 = (x - 3)(x + 9) \\
\text{p)} & 3x^2 - 6x - 105 = 3(x^2 - 2x - 35) = 3(x + 5)(x - 7) \\
\text{q)} & 5x^2 + 17x + 6 = 5x^2 + 15x + 2x + 6 = (5x + 2)(x + 3) \\
\text{r)} & 5x^2 - 7x - 6 = 5x^2 + 3x - 10x - 6 = (x - 2)(5x + 3) \\
\text{s)} & 3x^2 + 10x + 3 = 3x^2 + 9x + x + 3 = (3x + 1)(x + 3) \\
\text{t)} & 2x^2 + 9x + 4 = (2x + 1)(x + 4)
\end{aligned}$$

$$5.\text{a)} x^2 - 7x + 10 = 0$$

$$(x - 2)(x - 5) = 0$$

$$x = 2, 5$$

$$\text{b)} x^2 - x - 12 = 0$$

$$(x - 4)(x + 3) = 0$$

$$x = 4, -3$$

$$\text{c)} x^2 - 25 = 0$$

$$(x - 5)(x + 5) = 0$$

$$x = 5, -5$$

$$\text{d)} x^2 - 3x = 10$$

$$x^2 - 3x - 10 = 0$$

$$(x + 2)(x - 5) = 0$$

$$x = -2, 5$$

$$\text{e)} x^2 + 10x + 25 = 0$$

$$(x + 5)^2 = 0$$

$$x = -5$$

$$\text{f)} x^2 + 81 = 18x$$

$$x^2 - 18x + 81 = 0$$

$$(x - 9) = 0$$

$$x = 9$$

Budgets

1.b

2.d

3.Fixed cost is that the constant and doesn't change, such as rent, property taxes and insurance. Variable cost is that depends on how much do I use some-things, such as groceries, utilities and amusement.

4.a)option1-\$4200

option2-\$5640

b)He will pay utilities.

c)I recommend option 2 to Raj, because I prefer individual room than shared room. Option 2 is more expensive than option 1, but he will find worth paying rent.

5.

Col1	Col2	Col2	Col3
Income		Expenses	
Paycheck	\$1000	Rent	\$820
Allowance from parents	\$1000	Food	\$325
4	545	18744	7560
5	88	788	6344

6.

7.

8.a)\$18032.52

b)\$35.94

c)\$9180

d)\$855.2

e)\$275.8

9.Rent-\$11400

Insurance-\$840

Cable/Internet-\$1140

Electricity-\$540

Furniture-\$1500

Trigonometry Measurement

1.a) $\sin 20 = c/2$

$c = 0.684m$

b) $\tan N = 4.4/1.6$

$N = 70$